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ABSTRACT

A case study of the Nazareth Region in Israel analyzed the extension strategies used to develop the traditional Arab farming sector in an advanced agricultural surrounding. As part of the study, the history of the Arab farmer before and after the creation of the State of Israel was given. The methodology for the study involved interviews with development officers, former and present heads of the Nazareth regional extension office, extension workers who had long worked in the Arab sector and others who took part in the decision making about the development of extension for farmers in Arab villages. Results of the study indicated that the following strategies were instrumental in developing the Arab farming sector: (1) decentralizing the Israeli Extension Administration and setting up a regional office in Nazareth, the center of traditional Arab farming in Israel; (2) promoting the setting up of water cooperatives and land consolidation (interventions closely connected with problems arising out of specific, sociocultural traditions); (3) recruiting scientifically trained graduates from Faculties of Agriculture in both the Arab and Jewish sector to serve as extension workers; (4) constant pressure on extension advisers to upgrade their formal education; (5) introducing new farming approaches slowly, making small, easy changes; (6) using extension methods in line with the sociocultural approaches of the Arab farmer; and (7) interaction between the Jewish and the Arab Sectors. (Generalizations from this study to other cultural situations are also provided. An eight-item reference list is attached.) (NLL)

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EXTENSION STRATEGIES USED TO DEVELOP A TRADITIONAL FARMING SECTOR IN AN ADVANCED AGRICULTURAL SURROUNDING

THE CASE OF THE NAZARETH REGION IN ISRAEL

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EXTENSION STRATEGIES USED TO DEVELOP A TRADITIONAL FARMING SECTOR IN AN ADVANCED AGRICULTURAL SURROUNDING

The Case of the Nazareth Region in Israel[1,2]

by Abraham Blum[3]

This is a case history of the transition of a traditional farming sector which used to be less developed than its surroundings, until it reached a similar technological and economic standard. The change occured through succesive modifications, without breaking the basic socio-cultural patterns. The case history analyzes the extension strategies which played a pivotal role in this process.

1. Background

During the time of the British mandate over Palestine (1920 - 1948), most of the Arab inhabitants of Palestine were farmers. The main crops were rainfed wheat, rotating with summer crops and pulses. Olives and few other fruit trees were grown mainly on hillsides, and uncultivatable land was used as natural pasture. The wooden plough was the standard cultivation tool. Little chemical fertilizer was used. Only 800 ha of land was irrigated (1). At the end of the British mandate period, many Arab farmers grew crops mainly for subsistence or for local marketing. This changed with the rapid growth of the population, after the establishment of the State of Israel. First farmers in the regions closer to the cities changed to a market economy. Later also farmers in more remote areas like Nazareth and the Galilee did the same.

The agricultural development in the Arab sector of Israel went into two directions: as long as not enough water was available, the emphasis was put on the improvement of traditional rainfed crops (mainly wheat and olives) and on the introduction of new crops which could be grown without irrigation (sugarbeet and tomatoes for industry). Thus, for instance, rainfed sugar beet growing was introduced into the Nazareth region as alternative to the traditional wheat. In 1961 only 6 farmers in the Nazareth region grew sugar beet, on an area of 10 ha. Although cultivation methods had first to be adapted from the experience in irrigated fields to the rainfed conditions of Arab farm units, already four years later some 1,100 farmers in the area grew sugar beet on 1,300 ha. The

yield per ha had nearly doubled. Farmers' revenue per hectare was three to six times higher than that of wheat.

When the sugar factories were closed down, due to economic reasons, an alternative for sugarbeet had to be found. Rainfed tomatoes for industry were introduced. In 1967, the first successful field trial with rainfed tomatoes for industry was conducted by extension advisers of the Nazareth regional office. Six years later, the area under tomatoes, in the Nazareth region had grown to 2,000 ha.

When irrigation water became available, labor- and land-intensive crops were introduced, mainly out-of-season vegetables and strawberries, for export and industry, using the most up-to-date techniques of drip irrigation and plastic covering (8). The advantage of ample family labor gave the Arab village a relative advantage in vegetable growing over the Jewish settlements, in which labor was more expensive. Today, practically all cucumbers produced in Israel for canning are grown in Arab villages. So are a dominant part of export strawberries and 30% of leafy vegetables for export.

The dramatic changes in the agricultural production, in the Arab sector of Israel, which were well suited to the socio-economic and cultural patterns of the traditional population (as we shall see), trigger the question: What made this rapid change possible?

First attempts to identify the factors which contributed to the quick change in the Arab villages in Israel, mainly during the 1960s, were conducted by Arnon and co-workers (1) in the early 1970. They showed that according to a majority of farmers' views the introduction of agricultural extension was the main factor which brought about the change. Over 80% of the farmers mentioned extension advisers as the main source of advice and over 70% mentioned regular contacts with the extension system. This intensive interaction with advisers of the extension service continues and was recently reaffirmed. (3) Studies by Natour (5) and Tsur (7) showed high benefit-cost ratios for the economic contribution of extension to both traditional, rainfed crops (wheat and olive production) as well as to irrigation.

The evidence published so far indicates that agricultural extension was probably the single most important factor in explaining the quick and intensive

development of agriculture in the Arab sector of Israel. Therefore, if conclusions from this case are to be drawn to other cases in which a traditional, rural area within a wider and economically more advanced economy is to be advanced by extension efforts, one has to study in more details **how** these changes were brought about. This was the purpose of this study.

2. Methodology

Very little written records on the development of extension in the Arab sector of Israel are available. Whenever written evidence could be detected, e.g. in the files of the Extension Service and its forerunners, this was used, but such material was rather the exception than the rule. Regional directors and secretaries who remember the early days of extension, assure that in those days paper work which could help later to reconstruct history, was not considered particularly important or helpful. A thorough inspection of the still existing files in the Nazareth regional extension office and at national headquarters showed that they contain few documentations on policy and manpower decisions relating to the Arab sector.

With this situation at my hands, I had to rely mainly on the recollection of developments and trends by those people who had been active in developing extension in the Arab sector. They were development officers (before the national extension service was created), former and present heads of the Nazareth regional extension office, extension workers who had long worked in the Arab sector, former Ministry of Agriculture employees who were in charge of Arab villages and former heads of the national extension service, who took part in the decision making about the development of extension for farmers in Arab villages. Because most information came from informants (to use the anthropological notion) and was based on their personal history, I have also used a case history approach, emphasizing the human aspects.

Of course, such an **ex post factum** approach creates serious methodological difficulties. Our informants were looking back twenty five years and sometimes more, without having any written documents to help their recollection of events and trends. Moreover, their interpretations and beliefs could be influenced by later developments and changes in outlook. Therefore, it was necessary to check data and descriptions of events by confronting the answers given by each informant with the information received from others who told us about the same events. Usually there was no disagreement about events, but rather on the forces

which were behind them. Altogether, the puzzle which was created from the different pieces of information, gave a surprisingly clear picture. In order to check the accuracy of the data and of the interpretations, a draft of the more detailed technical report was sent to the informants and to former national extension directors, who were asked to react to it. In this way, further clarifications and details could be obtained.

3. Extension Between 1920 and 1960

The scope of this paper does not allow for a full treatment of the precedents of extension in the Nazareth region. During the British Mandate over Palestine (1920-1948), an Agricultural Inspector and his assistants were posted in Nazareth, under the supervision of the Agricultural Officer responsible for the whole of the Galilee and the Valleys. Much of the work was devoted to collecting statistical data (e.g. estimating yields) and to the supply of plant materials and chicks. The inspectors and their assistants were also involved in the financial arrangements (loans and grants) under which the farmers received the goods. Extension was not a top priority, but Agricultural and Horticultural Officers gave lectures, and the Agricultural Inspectors held meetings in the villages, mainly to persuade farmers to introduce new varieties of traditional crops. The main contact between farmers and the Agricultural Officers occured in the latter's offices, when farmers brought in plants with signs of diseases in order to receive plant protection "recipes". Written, monthly reports were deemed to be important.

The first decade of the State of Israel (established in 1948) was dominated by an intensive agricultural development in the Jewish sector. Hundreds of new settlements were established, and each was guided by an agricultural adviser who typically lived in the same settlement and was employed by the Jewish Agency. Growers' organisations, belonging to the Settlement Movements, organized courses and published written extension materials for the older settlements. Thus, most extension work was done by the Jewish Agency as parastatal body responsible for settlement, and by farmers' organisations. The relative few professionals of the Ministry of Agriculture mainly served the already well established Kibbutzim and Moshavim, or gave professional back-up to general advisers working under different umbrellas.

At the same time, the Nazareth region was under military rule. Soon after the establishment of the State's Ministry of Agriculture, a Section for the Arab

Village was set up, which was later integrated into the Department of Agricultural Development. This unit had mainly a planning function. Herzl Almon, who hold a M.Sc. degree in Agriculture and who had earlier contacts with Arab villages, was appointed Development Officer for the region. He was helped by two Arabs who served as Assistant Development Officers. Much of their work was devoted to the liaison between farmers and the Military Government. Professionally, they continued in the line started by the British. However, special attention was payed to the supply of water for both drinking and irrigation - a topic which until then was nearly unknown in the Arab sector.

A step forward in the direction of improving extension work was made when the development officers decided to hold their weekly "open day" for farmers who wanted to receive advice, on the same day on which the Jewish specialists of the Ministry of Agriculture did, and in the same place. This helped to link the farming population and the professional specialists, at a time the two belonged to separate units.

4. Setting up the Extension Administration.

The breakthrough came 1960, when the different extension services were fused into the Extension Administration, which was operated by the Ministry of Agriculture. The idea was to bring extension as close as possible to the farmers. Therefore, it was decentralized and 13 regional offices were set up during the next twelve months. One of them was established in Nazareth, the center of traditional, Arab farming in Israel. It is serving 54 Arab villages and Bedouin settlements. (The regional extension offices of Acre, Raanana and Hedera work with a mixed Jewish-Arab population.)

Four central issues had to be addressed:

1) What should be the basic principles of extension?
2) What kind of staff should be recruited?
3) How should farmers be approached?
4) What methods should be used?

While the basic organizational-philosophical issue of developing an extension system was to be solved nationally, it was agreed, that in choosing suitable staff, in developing fruitful approaches to farmers and in the use of extension methods, socio-cultural traits of the latter should be taken in account.

4.1 The Basic Principles of the Extension System

The general principles adopted by the Israeli extension system, which have been described elsewhere (2), were the same in all regions of the State. The first principle was to be as much as possible with farmers in their villages and only one day per week at the office. Advisers were expected to have regular and active contacts with agricultural researchers, e.g. by being involved in field experiments. All advisers were to become specialists in a certain subject matter, and professionalism was to be promoted by constant upgrading of the knowledge to which at least one day per week should be devoted. Whenever more than one specialist in a certain subject matter area worked in a regional office, they were expected to coordinate their work, forming a "cell". All specialists in a given branch met nationally at least once a month to discuss professional problems. Another aspect of professionalism was the independence of advisers from any statutory or regulatory function. Advisers were to concentrate on extension only.

These rules applied also to the Nazareth extension office. However in two important issues Nazareth advisers followed a path which differed from that of their Jewish colleagues. They promoted the setting up of water cooperatives and land consolidation. Both interventions were closely connected with problems arising out of specific, socio-cultural traditions.

When the water resources of the country were developed, arrangements for the distribution of irrigation water and for the maintenance of the infrastructure at the local level had to be made. The national water company Mekorot wanted to deal with only one partner and one water meter in each village or settlement, and expected the villagers to organize the distribution of water within the village themselves. Society in the Arab village is built mainly on the Hamullah, the extended family. Cooperative corporations are seldom and municipalities weak. Therefore the extension advisers of the Nazareth region decided to get involved in the formation and promotion of water cooperatives and actually played a major role in this development. Today, there are 35 water cooperatives with 1100 farmers in 11 Arab villages in the region (7).

The introduction of modern, irrigated agriculture into the Arab village had two not unrelated and revolutionary effects. More and more of the younger people who had gone to work in Haifa and other cities, mainly as builders or in services, now came back to their villages and to agriculture, which became

economically the better alternative and socially the more respected occupation. Many of the older farmers found it difficult to cope with the rapid changes which irrigated farming brought with it. The old men remained the formal heads, but let their sons run the farm (6). These had no problem to utilize the help of the extension advisers who were of the same generation.

The second and perhaps deeper change, towards which extension advisers were working in the Nazareth region, occured in the attitude towards the transferability and consolidation of land, especially in relation to inheritance. According to Koranic law, land should be divided up in equal parts among all sons and daughters. The latter should received "half portions", but in most cases, especially when they married outside the village and the Hamullah, daughters did not inherit land (6). This was, of course, not acceptable to the land registration office, which was bound by religious legislation in all cases of inheritance. Therefore, in most cases, the heritage settlements were not registered there.

In order to secure equality among the heirs, the land underwent a double partition - first into strips of equal quality (often only 10 meter wide) and then each strip was cut into small pieces of land, according to the number of heirs. It was important that each one should have access to a road, and many quarrels were about the right of passage. The result was, that a farmer had sometimes dozens of tiny plots, dispersed over a large area. Under these conditions, irrigated agriculture was practically impossible, and farmers started to agree to consolidate their land. Consolidation was not easy to achieve. Most of the arrangements could not be registered in the land registration office (for the reasons mentioned). In spite of all difficulties, land consolidation became more common, and the extension advisers were very active in persuading farmers to join land consolidation schemes (8).

4.2 The recruitement of staff

It goes without saying that an extension organisation which wanted to change old established, but counterproductive customs in a traditional society had to recruit and keep suitable personalities, down to the grassroot level, and to develop effective ways of work.

Herzl Almon, the former Agricultural Development Officer of the region became the first Extension Director of Nazareth. His first task was to recruit a team.

He wanted practically minded people, mainly graduates from agricultural schools with practical experience. They should come from traditional Arab villages and well understand the mentality of the Fellahs, but they also should have had some of their education together with Jewish Israelis. He thought this will facilitate cooperation with specialists and expose them to the pioneering spirit which dominated Jewish youth at the time. Therefore Almon was looking mainly for graduates of Kadoorie and Miqve Israel agricultural schools, where also good practical training was given. The candidates should not be socially distant from the farmers. His experience in the Arab sector was that people with university qualifications tended to deliver lectures and did not want to dirty their hands. Therefore disagreements with his superiors arose mainly when the question of employing university graduates came up. In principle, Almon - himself an alumnus - cherished further studies. Yet, at the time, Almon feared that Arab graduates of universities would behave as extension workers in the traditional way, giving lectures and working in their offices. On the other hand, Admoni, the National Extension Director at the time, favoured in principle the recruiting of graduates of the Faculty of Agriculture, in both the Jewish and Arab sector, because he foresaw the need for scientifically trained extension workers. He believed that through the personal example of the oldtimers and the intensive work of the Extension Division the new recruits will accept the down-to-earth and get-your-hands-dirty approaches as standard doctrines.

Almon inquired in the agricultural schools about suitable candidates and encouraged them to join the extension service. It is interesting to note that the two future directors of the Nazareth extension office, Mustafa Natour and Hisham Younis, did not apply for a position as adviser out of their own initiative. Almon had known Mustafa Natour since he was a boy of 16 and were much impressed by his potential. Mustafa had worked as a boy on the family farm, was among the first Kadoorie boys who was elected as Farm Coordinator on the school's training farm (which was run by the students themselves). He had successfully farmed for himself and had run agricultural courses for Arab boys.

Almon met Hisham Younis, who also was a graduate of Kadoorie, when he visited Hisham's home village and the young man explained to him the agricultural problems of his village. Before the official tender, Almon arranged for interviews of the candidates, in which also specialists took part. Together, they examined the knowledge of the candidates, of whom there were about 3-4 times more than posts available. Natour and Younis joined two experienced former Assistant Deve-

lopment Officers, which were transferred to the new extension service. Another adviser who joined the Nazareth office had been for some time an agricultural teacher and had then worked in agriculture as tractor operator.

May these examples suffice. They are typical also for the other advisers who joined the Nazareth extension office during its initial stage. All but one still work in the extension system, 25 years after its inception - a sign for the strength of the team created.

At that time, all the new extension advisers were graduates of Kadoorie Agricultural School in the Galilee. This may be the right place to emphasize the immense influence an agricultural school can have on the agricultural development of a nation. The fact that the Jews in Palestine were the only nation in which an Agricultural School (Miqve Israel, founded in 1870) preceded the beginning of its agriculture is often cited. The first Jewish agricultural settlement in Palestine (Petah Tiqva) was established 1878. While Arab villages in Israel are much older than any agricultural school, the indirect influence of Kadoorie (and other Jewish agricultural schools) on the modernisation of agriculture in the Arab sector, through extension, is tremendous. In 1951/52, the director of Kadoorie opened the school to Arab students (and also, for the first time, to girls). He employed special tutors who helped the Arab students to overcome the language handicap. The Development Officers did their best to send able youngsters from the Arab villages to Kadoorie.

Although the policy was to find Arab extension workers and to hand the office over to them as soon as possible, Jewish specialists were needed for the beginning. Those who joined the Nazareth office were specialists for field crops and farm mechanization, two relatively new developments in the area, and an expert on the rejuvenation of olives, another major problem in the area at the time. These specialists actually acted mainly as "advisers of advisers", working with their less specialized colleagues and thus training them on the job.

Over the years, farmers moved from subsistence agriculture to production for the local market, and when this became saturated, to the growing of produce for export. Thus they became more specialized. This made it necessary that also extension advisers became more specialized. First, advisers continued to work mainly in specific sub-regions, but at the same time they attended courses which

were arranged by the national headquarters and strengthened their links to research.

4.3 Constant Upgrading of Staff

In order to reinforce the trend towards specialization, thus following the policy of the Extension Administration, the Nazareth Extension Director took various steps. He appointed for each important crop one of his extension advisers who was to become the leader in the promotion of the crop, mainly through well planned field trials, which could produce reliable results. These trials were supervised by outside experts (researchers or department heads from the national center). This was done to increase both the adviser's professional capability and to accrue knowledge on the behavior of the crops in the region. When necessary, all other advisers were "mobilized" to help in the planting, harvesting and weighing of the crops in the experimental plots.

Attention was also paid to the social consolidation of the adviser team and to its motivation. This was accomplished through formal and informal meetings and activities, even through participation, as a group, in the annual 4-day march, a national event which was popular at the time.

When Almon, the regional Extension Director, had started to study part-time sociology, because he believed this could help him in his task, Mustafa Natour became more involved in decision making. Then, in 1967, Almon took over an advisory assignment abroad, and Natour became acting director. There was a certain opposition to his becoming regional director - on both the Jewish and the Arab side, and Natour himself hesitated. While some Jewish politicians thought that the time had not yet come for an Arab to assume this important post, also among the Arab leadership there were fears that by accepting the job, the new director might become a tool in the hands of the government and no longer be able to forcefully put forward the interests of the farmers in the region. Actually, all the heads of the extension service were in Natour's favor, and in 1968 he was appointed director of the regional office.

From its beginning, the Extension Service in Israel encouraged its advisers to upgrade their practical and theoretical knowledge in Agriculture, and especially to take up formal studies at the Faculty of Agriculture. Until 1972, only two or three staff members in the Nazareth regional office were academics; by 1978 eight out of the twelve advisers held academic degrees. This became

necessary, because ten years after the establishment of the extension service, also in the Arab sector of agriculture in Israel, sons of farmers came back to the village, after having studied at the Faculty of Agriculture. The progress of Agriculture in the Arab sector put pressure on the advisers to upgrade their formal education.

Two main factors made Mustafa Natour decide to study at the university, as first of the regional extension directors. (1) The intensive professional and administrative work wore out, and the need to "refill the battery" was felt stronger and stronger. (2) At the same time, the traditional norms for the relationships between different levels in the governmental bureaucracy, as accepted in the Arab society, made it more difficult for a non-university graduate to be the superior to better educated employees, compared to the norms in the Jewish sector. Also, academic titles had become status signs in the Arab society, and with the rising level of education, this happened also in the villages. Thus, in 1973 Natour, then a father of four children and without matriculation, decided to take up university studies. He moved from the initially agricultural studies in Rehovot to economics, which could be studied closer to home, in Haifa. He earned a B.A. and an M.A. degree, with the first thesis to be written in Israel on the economic contribution of agricultural extension.

In 1982, when Mustafa Natour took over a major extension project in Peru, Hisham Younis became regional director. This time, there was no more opposition on ethnical grounds. Both the government and the Arab farmers realized that somebody local, who grew up within the service, was known for his devotion, was loyal, but also outspoken about his views would be the best choice. Younis, too, went back to the books and the laboratory, studied for matriculation, a B.Sc. degree and after some more years of service also towards a M.Sc. degree in plant protection. Lately he started to work on a Ph.D. thesis - all on a part-time basis, while continuing his work in extension.

4.4 The specific approach to farmers

The main problem was: how can young extension workers gain the confidence of older, more experienced farmers in a society with authoritarian heads of family? In the beginning, the answers did not necessarily come from a well prepared blue-print. Rather intuition played a great role; but in retrospective we can identify a number of strategies which were later used in the initiation of new advisers.

The first period in the work of the Nazareth extension office was devoted to the identification of problems and professional issues in the region and to setting priorities. The first innovations must not demand considerable changes in farmers' behavior or involve heavy expenditures. Also, the results of the new practices should be observable within a short time. Thus, farmers' trust could be gained. At the same time, the advisers underwent intensive training in both the professional sphere, as well as in extension methods.

Spraying was readily accepted by farmers, because the results could be seen within a short spell of time. Also, plant protection was an area in which farmers were ready to accept the advice of "plant doctors", who like veterinarians did not seem to threaten the authority of the pater familias. The number of sprayers multiplied 18 times within 10 years after the setting up of the extension service in the Nazareth region.

Advisers found it often more difficult to persuade farmers to change to a new variety of a traditional crop than to introduce a new crop. This was due to the objective or subjective feeling of farmers that they had more experience than the advisers. Sometimes, they were right, from their point of view. This happened, for instance, when the extension service wanted to replace the traditional "Egyptian" onion by the higher yielding "Grano" variety, which was also suitable for the inland and export markets. At the time, Arab farmers were more concerned with growing onions for their homes than for the market. The Egyptian onion had a thicker skin and kept better under home storage conditions than the new varieties. Farmers had a good reason why they prefered the old variety, as long as they produced them only for their own use.

Similar difficulties were encountered when high yielding wheat varieties were introduced. Farmers complained, that it was impossible to bake the traditional Pitah from the flower of these varieties. In this case, the difficulty could be quite easily overcome. One of the specialists who served at the early stage as "adviser of advisers" worked with a traditional Pitah bakery until he found a suitable high yielding variety which gave good Pitah flour. Then the new variety was readily accepted by farmers.

In many cases, it proved to be easier to introduce new crops than to change techniques in traditional crops. The introduction of sugar beet (as long as sugar factories paid good prices) was a hit. In 1961, when the Nazareth exten-

sion office was established, only six farmers in the region grew sugarbeet, on an area of 10 ha. During the first growing seasons, the agrotechnology had to be adapted from the experience in irrigated sugar beet growing (in the Jewish settlements) to the rainfed conditions in the Arab villages. This was first done intuitively, but soon the advisers started to set up field trials. Four years later, 1,100 growers had 1,300 ha under sugarbeet. In the meantime the yield, especially in terms of sugar per ha had nearly doubled and reached 30 tons per hectare. Arab farmers who for harvesting used rather the manpower of their large families than machinery, had the advantage that their percentage of spoiled beets was lower. The limiting production factors were, at that time, land and water, and not labour which was readily available in the extended Arab family. Also, by growing under rainfed conditions, the sugar beets contained 20% sugar (compared to the 13% in the irrigated fields of Jewish settlements). The factory payed a bonus for each percent sugar, above 16%. Also in this case of a new crop, a temporary specialist, a member of a nearby Kibbutz who worked for the sugar factory, served as "advisers' adviser".

With the intensification of agriculture in the Arab sector, in the 1960's, more tractors were introduced. As in other parts of Israel and the Western world, this was not only done out of necessity, but also because the tractor became a status symbol. The extension service feared unrepairable damage to the soil. Therefore it was considered to be so important to have in the team a specialist for heavy farm machinery, who could also teach good maintenance of the tractor. Also in this case, the success can be explained to a large part by the fact, that no "bad practices" had to be replaced. The right instructions were given with the introduction of the novelty - the tractor. Again it was found to be easier to introduce new practices than changing old established ones - even when simple changes like planting distances were suggested.

So far about the strategy to introduce either small, easy changes, or completely new crops, before making major changes in traditional crops (which were made, once the farmers' confidence was won). In the next sections I want to use some case histories of young advisers to show how they gained the trust of traditional farmers.

A. started to work in villages which were not far from his home. Belonging to a big, local Hamullah and not "coming from the road" helped the young adviser in the Arab sector to get initial "credit" from the villagers, until he

could prove himself. It allowed him to suggest to the patriarchal family head to try innovations. The same feelings were shared also by the other extension workers who worked in the extension service during the 1960s. However, the younger people, who joined during the last decade or two, with university degrees, did no longer have this problem.

Kafr Kara was the most developed of the Arab villages in the region. They grew crops which A. did not know, in spite of his practical experience. A. let it known that he came to familiarize himself with the area. He began advising in the crops he knew (e.g. cucumbers) and his advice proved to be right. The farmers liked that he did not fear to get his boots off and to get into the mud to plant together with them.

B. started his extension career later. In order to familiarize himself with crops with which he had no experience, he started by accompanying other advisers on their rounds to growers. He was especially impressed by A.'s personal example of initiative, leadership, foresight, diligence and hard work, and he tried to copy it. The encouragement offered by the regional extension director helped much.

B. too, made initial use of family connections. In order to gain the confidence of the farmers, he decided to push a novelty. At that time growing staked tomatoes, irrigation, pest control and, some time later, plastic were the new technologies which the extension service wanted to spread. In the morning, A. was in the field even before the farmers, and he visited the villages regularly, on fixed days during the week. Meetings with the farmers took place at the well or other suitable places. Walking through the fields, from village to village, the adviser got to know all farmers' plots, and this too made a strong impression on farmers.

Both A. and B. went back to their books, to sit for matriculation, and to earn B.Sc. and M.Sc. degrees at the Faculty of Agriculture, when they were already family fathers. Noblesse oblige, and the need to rejuvenate oneself has been deeply ingrained in the extension service, which encouraged its advisers to study Agriculture and actually helped them by releasing them from part of their duties (without loss of salary) and by participation in the tuition fees.

B.'s expertise, and the policy of the extension service brought him into contact with more and more Jewish settlements, where he is well received and his personality and expertise are valued. Today, he is the national extension leader for one of the main export crops.

C., a graduate of Miqve Israel agricultural school and of a senior technician course at the Ruppin training center, joined the extension service in 1964. Like many of his colleagues, he decided to concentrate on a novelty - in his case growing vegetables under plastic cover. Many of the traditional Arab growers did not believe they could adopt this method which spread among Jewish settlement. To prove they could, C. worked first with one grower, nearly like a family member, on a small area. The result was so impressive, that next year many of the others in the same village joined. Within a year, the surface under plastic grew 15 times. When flower growing became a hit because of its great export potential, C. retrained and became a floricultural adviser, in both the Jewish and Arab sector. Again, the theory, that new techniques can be introduced easier when coupled with a new crop, proved itself right. With the flowers, also drip irrigation was readily accepted.

Like Mustafa Natour, also C. was sent abroad as expert in agricultural extension. In this he was no exception. Rather unusual for an adviser in the extension service (although not being the first), was C.'s decision to leave the government service in order to join the field service of one of the Kibbutz owned factories for drip irrigation. He attained there a very respected position and is often sent to many of the countries to which irrigation equipment is exported and installed on a turn-key basis.

Although the population in some parts of the area were devout Muslims and very traditional, this did not prevent advisers from working and advising women in the field, but only once they enjoyed the farmers' trust and were careful to keep to the traditional rules of meeting with the opposite sex. Yet, the initiative had to come from the farmer's side. Loosing the trust of one family would have destroyed the trust of all the others in the village.

Sometimes, the introduction of a new crop lead to unforseen changes in the social behavior. Thus, when strawberries became the dominant crop in many villages and the women in the family had to pick strawberries, instead of preparing the midday meal, often the main meal was now taken in the evening.

The existence of Hamullahs demanded from advisers also "diplomatic" qualities. When competing Hamullahs gave the extension worker inside information, he had to be careful not to spill it out to others. Each faction thought the adviser to be "their man". He had to be careful to remain neutral and to serve all.

4.5 Extension Methods Used

Extension methods used by advisers must be in line with their socio-cultural approaches to their clients. While methods as such are universal, their use has to be adapted to the local situation. Especially in the early stage of work in the Nazareth region, much emphasis was put on meetings in the village. Courses were given in the villages, sometimes twice a week. They were specially impressive, when slides were used. Slides were at the time a relatively new gimmick and had the advantage that real situations could be shown. Of course, advisers had to be ready to visit the villages also in the evening. The slides were produced either by the extension advisers themselves or by the photographer of the extension service. Where no electricity was available, the advisers used batteries or small generators for the equipment which was adapted for the use of these energy sources.

Another imporant method was the establishment of demonstration plots on farmers' fields. Initially, these were mainly on the fields of bigger farmers, and the rate of imitation by others was slow. They felt "what the rich can afford to do, I cannot afford." Then sociometric stars were sought (without necessarily using the full sociometric methodology) and that proved to be effective. Yet, sometimes also complaints were received, accusing the extension workers of favoring certain farmers (and families) more than others. As a rule, only minimum incentives were offered, "to get the thing going". The rule was that the incentives alone should not make the change "worthwhile".

Farm visits were a standard procedure. In order to avoid bad feelings, adviser-initiated visits were directed mainly to the fields of the sociometric stars who implemented the advice given; but also requests for visits on other farms were accepted, whenever possible. Farmers were informed beforehand, through the Mukhtars (the village headmen) and in reply to letters, when and where the next visit will take place. This means of communication was less efficient than hanging out a note on the notice board of a Moshav secretariat, for which no equivalent existed in the Arab village.

Arnon et al.(1) found in the villages, which they researched, that demonstration plots were more popular than individual visits by the adviser. This is probably connected with the emphasis on social interaction in a society, in which many family links exist and discussion is a favorite social activity.

The villagers in the Arab sector loved festivities. Therefore, especially in the early days of extension, many fairs and competitions (for the best plowmen etc) were held, with a lot of fuss, dignitaries, committees, juries, prizes (back sprayers and similar tools), and popular involvement. The best wheat grower in competitions which were held in the early 1970s received a money prize and a letter of commendation by the Minister of Agriculture. These competitions, in which farmers and advisers served as judges, demanded a special effort on the side of the advisers, but this was considered worthwhile.

Specially popular were excursions, for which the extension service provided trucks with benches. Always a token payment, which farmers could afford, was asked for. It did not cover the real costs, but letting farmers participate in the costs was considered educationally important. At each of the "stations", on the route waited an extension adviser and explained the local highlights. Light refreshments were offered. Every group activity, which was combined with social interaction, was considered to be a "Hafla", a festive occasion.

Publications proved less effective. An illustrated monthly, "El Mazra", was published and had in the mid-1960s a distribution of 1,800 copies, but its success seemed to be restricted to the more progressive farmers. The cultural pattern proved to be more verbal than written. Therefore the emphasis in using the mass media moved more to the preparation of radio programs, which became very popular. Many letters were addressed to the radio uncle, also from Jewish farmers who had immigrated from Arab speaking countries and used to tune in to Arab language radio programs. After the 1967 war and the peace treaty with Egypt, it became known that farmers in the (Jordanian) West Bank and even in the Egyptian Delta area had regularly listened to the agricultural programs in Arabic from Israel. Also today, the three weekly radio programs in Arabic are allocated a better listening time (just before the main morning news) than in the Hebrew transmissions.

When Israel introduced television (so far one channel only, which serves in the morning and early afternoon educational television), two of the evening

hours were scheduled for emissions in Arabic. This includes a bi-weekly "Agricultural Magazine". This program became popular, when one of the Arab extension advisers took upon himself the presentation of the program. The program ends with "News from the Field", mainly up-to-date advice on plant protection. In a recent survey which we conducted among farmers in Moshav settlements, they rated the practical knowledge gained from these television broadcasts (which are in Arabic, but with Hebrew subtitles) as higher than the knowledge gained from the daily 10 minutes radio programs on Agriculture, in Hebrew, which are put on the air quite early in the morning (4).

4.6 Interactions Between the Jewish and the Arab Sectors.

The development of extension in the Arab sector of Israel might have been different, had the two sectors not been interacting. Arab farmers were well aware of the rapid developments in the Jewish sector, and especially in the Moshav family farm, which was not so different in size from their own. The interaction of the two agricultural subsystems, the Jewish settlements and the Arab villages, was of a dual character. On the one side, Arab farmers had a tendency, especially in the early years of the co-existence, to see in the Jewish farmers supermen or to attribute their agricultural success to the higher capital investment and to better opportunities. In both cases, the easy conclusion was, that the differences in background and conditions did not allow to copy or adapt the techniques used in the Jewish sector. On the other hand, Arab agricultural extension advisers and leading Arab farmers argued: "What they can do, we can do as well". They actually showed that by using their relative advantage, especially the more available large-family manpower, they could sometimes do even better than the Jewish settlements (e.g. in strawberry production).

Minorities tend to try to show the majority that they are not inferior or "what you can do, I can do better", even if the odds are against the minority. The Jewish history in the diaspora is full of examples. Something similar happened with the Arab extensionists in the Israeli extension service. It is not by chance, that both Arab directors of the Nazareth regional extension bureau made an effort to study at the university, while continuing their tasks, and earned a Master's degree. None of their nine Jewish colleagues did.

5. Conclusions.

What can be learned from this case study, which might be relevant to other traditional societies? The answers to this question depend, of course, on the specific socio-economic and cultural situation, to which an agricultural extension solution is sought. Yet, some generalizations seem to be applicable in many cases, especially in those in which agriculture is traditional, technically less developed and farmers' income is low, at the beginning, but where there is no acute hunger, a market economy is possible and the will to advance agriculture is manifested.

Choosing the extension advisers. In any extension service, the field level workers, the farmers' direct advisers are the key to any success. In our case, the extension systems was built on (1) advisers and other personnel of former systems, which could be fitted into the new structure, and (2) new recruits. In the first case, often a reorientation is needed, in the latter - candidates can be selected according to priority qualifications, set by the extension system, taking in account the manpower situation in the country concerned. In our case, the search was for enthusiastic youngsters with practical experience, who knew very well the mentality of their clients, but were also exposed to more advanced agricultural technologies, preferably in an agricultural school in which work was as important as theoretical studies. They should be able to find the balance between following a code of behavior which is accepted by the traditional farmers, and especially their clan leaders and showing leadership by promoting sensible changes. When extension advisers join the service with more theoretical qualifications than practical experience, the main effort in the induction process will be directed towards creating a hands-on attitude.

Establishing credibility. After choosing suitable advisers, the next decisive step was to gain farmers' trust. In our case, that was a hard nut to crack, for two reasons: The advisers, especially in Israel, were young and the traditional farmers would not believe that less experienced youngsters knew more than they themselves. In the first stage, "coming from a good family" could give some "credit", but this had to be justified by hard work. The breakthrough was due to the regular field visits of the advisers, during which they pulled their sleeves up and got their hands dirty, showing how things can and should be done, often working harder than the farmer himself. The final appreciation was gained, when the new techniques and practices showed an improved economic profit.

First priorities to gain the farmers trust were (1) Plant protection, where results can be seen within a short time and where the relative advantage of the advisers' knowledge could be used, and (2) introducing new crops, on which the farmers had no previous knowledge, and which gave a much higher return per unit land than before. In both cases, farmers were more dependent on the adviser than when the extensionist wanted to improve old practices. Success was especially high, when the relative advantage of the farmers, compared to other groups was high. In our case, the availability of manual labor, especially that of women who due to cultural traditions are not supposed to work outside the family farm, was used advantageously, when suitable crops were introduced.

Trials of new crops were always started on small plots, so that the risk was not high and farmers could compare the results with those in the traditional crops. Before a new technology was promoted, its suitability to the region and to the village was assessed.

Overcoming **traditional barriers and taboos.** Extension advisers observed the traditional rules of accepting hospitality, which sometimes included receiving inside information; but they were careful not to get caught between competing Hamullahs, where such a situation existed. Once they had gained the trust of the farmers, they even could advise the women in the field (who did most of the manual work), but the initiative for this had to come from the farmers. Over time, even more "revolutionary" changes occured: Farmers let their better educated sons make decisions (but kept their formal supremacy) and they agreed to a consolidation of the many, but tiny plots which were the result of unefficient land partition among heirs and which could no longer be effectively irrigated or cultivated.

Local autonomy. The development of local, professionally strong leadership was planned from the beginning, and implemented as soon as the political situation allowed it. If that was possible even under military rule, it should be even more so in cases of greater cultural, ethnic and political homogeneity. Actually, one of the tactics of the local advisors was to encourage farmers who argued that only "the others" (the Jews,in this case) could adopt the innovations, using the slogan: "what they can do, you can do as well".

Methods adapted to the mentality of the audience. Not only the personal behavior of the advisers took in account the mentality of the audience; also the choice of methods was influenced by it. Therefore special attention was given to verbal instead of written communication and to suitable social activities.

Importance of backing up. Extension advisers could work best, when they were backed up -

(1) professionally - by experts within the extension service and from research institutes,
(2) economically - when economic incentives were offered to farmers (supply of seeds, loans and grants for the new ventures etc.),
(3) administatively - by their superiors, when visiting together farmers, and when difficulties arose within the Ministry of Agriculture system.
(4) politically - when those responsible for agricultural development prevented political interventions as far as possible. (This was especially important in our case, in which extension started under military rule)

Mobility is a most important factor for efficient extension. It changed over time, starting with donkeys and horses, continuing with shared transpostation, until each adviser could get loans to buy a car and received a per kilometer allowance.

In-service training. This is always needed, never mind at what level of education the adviser comes into the service. The training can take several forms:

(1) Constant, informal, on-the-spot training, by subject matter specialists who belong to the own, or a related knowledge system. This includes training in the planning and conducting of simple (and later more sophisticated) field trials.
(2) Formal training, at the appropriate level, which serves both as recognition for achievements and incentive for further efforts. Therefore good and reciprocal relationships with training institutions is of high importance.

Links to research. This study does not explain the many formal and even more numerous informal relationships which existed between the advisers and research. Both felt that they belonged to the same knowledge system. Also the informal atmosphere of the research institutions involved helped much. The best links existed when experienced extension workers became research students (mainly through M.Sc. thesis work). This was only possible because the Extension

Service, on one hand, understood the importance of further, formal studies and gave the necessary time off, and the University, on the other hand, was ready to let these mature students do research in areas relevant to their work. Thus also advisors' initiative was encouraged.

Local planning. Before every season, plans were revised and adapted to the special situation of each region and even of each village.

Extension plus. Although the extension service in Israel saw extension as their only goal, advisers had to devote attention, at least in the beginning, also to other needs of farmers. These "sidelines" diminished, as the necessary, parallel infrastructure (for input supply, dealing with water distribution, marketing, overcoming red tape etc) were created. Over time, the direct involvement of advisors in other than extension activities disappeared and was replaced by encouragement to use the new infrastructures.

Zusammenfassung

Der Artikel streift die rasche Entwicklung in der Nazareth Region Israels und im Gaza Streifen, in denen traditionelle, arabische Bauern innerhalb einer Generation den Weg von Subsistenzwirtschaft zur modernen, intensiven Landwirtschaft zurückgelegt haben. Dabei spielte die Beratung eine massgebende und vielleicht sogar die einflussreichste Rolle. Der Erfolg ist auf die folgenden Strategien zurückzuführen:

Das Beratungspersonal wurde sorgfältig ausgewählt. Es bestand aus jungen, auf dem Land und in der Region aufgewachsenen Absolventen einer modernen, landwirtschaftlichen Schule, welche die Mentalität der Bauern gut kannten. Sie bemühten sich erfolgreich, das Vertrauen der älteren Bauern zu gewinnen, durch praktische Beispiele und Einführung von neuen Pflanzenarten, mit denen die Bauern keine Erfahrung hatten. Am Anfang wurde Erneuerungen, in denen die Resultate schnell sichtbar werden, der Vorzug gegeben. Neuheiten wurden anfangs immer auf kleinen Flächen versucht. Mit der Zeit wurde es möglich, soziokulturelle Hindernisse und Taboos zu überwinden. Eine weitgehende Autonomie der regionalen Beratungsstelle wurde unterstützt, sodass sie ihre ethnische Eigenständigkeit bestärken konnte. Da die Bauern einer Minderheit angehören, wurden sie von den einheimischen Beratern angespornt, der Mehrheit zu zeigen, dass sie eben so fähig sind wie jene. Auch die Beratungsmethoden wurden der Mentalität

der traditionellen Bauern angepasst. Berater waren dann am erfolgreichsten, wenn sie von Experten und der Administration unterstützt wurden, wenn Bauern wirtschaftlich angespornt wurden, und wenn politische Einmischungen ausgeschaltet werden konnten.

Die Berater ergänzten und erneuerten ihr Wissen regelmässig, sowohl formell als auch informell und wurden darin vom Dienst unterstützt. Von Zeit zu Zeit wurde die Mobilität der Berater verbessert. Am Anfang jedes Pflanzzyklus wurden die Beratungspläne für jede Region und jedes Dorf neu überprüft and an die neuen Umstände angepasst. Obwohl sich die Berater grundsätzlich nur mit Beratung abgaben, spielten sie eine grosse Rolle in der Landkonsolidation und in der Gründung von Wasserkooperativen, da niemand anders diese Aufgabe übernehmen konnte.

Notes

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References

1. Arnon,I. et al. 1976: "The Changes in the Arab Villages in Israel and in the Areas." Settlement Study Center, Rehovot, Israel. Hebrew).

2. Blum,A., 1987: "The Israeli Experience in Agricultural Extension and its Application to Developing Countries", In: W.M.Rivera and S.G.Schram (Eds) Agricultural Extension Worldwide - Issues, Practices and Emerging Priorities. Croom Helm, London, 163-171.

3. Blum,A., 1988: "Use of Extension Services by Traditional Arab Farmers in Israel and in the Gaza Strip." Quarterly Journal of International Agriculture.

4. Blum,A., Azencot,M., 1987: "The Contact Between Agricultural Extension and Family Farmers in Israel - With Some International Comparisons." Paper presented to the 8th European Extension Education Seminar, Reading , U.K.

5. Natour,M., 1982: "The Economic Contribution of the Agricultural Extension Service in the Nazareth Region: With Special Reference to Wheat and Olives". M.Sc. Thesis, Technion - Israel Institute of Technology, Haifa (Hebrew with English summary).

6. Rosenfeld,H, 1964: "They Were Peasants". Kibbutz Meuhad, Tel Aviv (Hebrew).

7. Tsur,Y., 1985: "Assessment of the Economic Contribution of Bringing Water to an Arab Village. In: New Direction in Agriculture in the Nazareth Region. Ministry of Agriculture, Extension and Professional Service, 11-14 (Hebrew).

8. Younis,H., 1985: "Changes in Agriculture in the Nazareth Region", In: New Direction in Agriculture in the Nazareth Region. Ministry of Agriculture, Extension and Professional Service, Tel Aviv, 3-10. (Hebrew).